4 Years Bachelor of Computer Application (BCA)/Third Semester/*Final*
Time: 03:00 hrs.   Full Marks: 80 /Pass Marks: 32
BCA270CO: System Analysis and Design *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions.   2×12=24

1. What is System Development Life Cycle? Explain the Prototyping Technique of SDLC in detail. Under what conditions Prototyping techniques is generally used?

2. Why data flow diagram is considered very effective tool is software design? Draw a context diagram and higher level data flow diagram for a Library Management System.

3. Explain when do we prefer to use a decision table instead of a flowchart? Draw a decision table to find out the smallest among three given integers.

Group B

Answer SEVEN questions.   7×8=56

4. What do you mean by system planning and initial investigation? Explain how data is collected using interviews and Questionnaires?

5. What are conceptual data models? Draw an ER diagram for a Hospital Management System that includes Doctor, Patient, Medicine, Test, and Ward as main entities. Also make necessary assumptions if required

6. Explain how the concept of functional dependency is used in relational database design? What is the main concept behind Second Normal form? Explain with a suitable example.

7. What do you mean by system Implementation? Explain all the activities that are carried out during system implementation.

8. What is object oriented analysis and design? Draw a use-case diagram for an Online Purchase System.

PURBANCHAL UNIVERSITY
2017

4 Years Bachelor of Computer Application (BCA)/Third Semester/Final

Time: 03:00 hrs.   Full Marks: 60 /Pass Marks: 24

BCA275CO: User Interface Design *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions.   2×12=24

1. What are the features of a Good User Interface? What design concepts are used in making the interface user friendly? Why understandability is considered a major parameter during interface design?

2. Compare direct and indirect manipulation with suitable examples. Define selection and explain additive and group selection in detail.

3. What are bounded and unbounded entry gizmos? Why is validation necessary in entry gizmos? Explain with examples.

Group B

Answer SIX questions.   6×6=36

4. Define pop-up menu. What do you mean by system menu? Explain.

5. Explain repositioning, resizing and reshaping operations with examples in gizmos manipulation.

6. What is goal-directed design? What are the benefits of modeling from user's viewpoint?

7. Explain revenue and excise tasks with examples? Why is it necessary to eliminate excise tasks in software design?

8. Define buttcon. What are momentary and latching buttcons? Explain with examples.

9. What do you mean by platform independence? Mention the issues with multi-platform development.

10. Write short notes on any TWO:
    (a) Canonical vocabulary
    (b) Flow
    (c) Combo box and radio buttons

    ≋

PURBANCHAL UNIVERSITY
2017

Years Bachelor of Computer Application (BCA)/Third Semester/*Final*

Time: 03:00 hrs.   Full Marks: 80 /Pass Marks: 32

BCA271CO: Computer Architecture *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Group A

Answer TWO questions.   2×12=24

1. Explain about Harvard architecture with a block diagram. Point out the difference between Von-Neumann and Harvard architecture.   8+4

2. Explain about Booth algorithm for multiplication of two numbers. How 3*9 is performed using this algorithm?

3(a) Discuss virtual memory.   3

  (b) Discuss importance of cache memory.   3

  (c) What is memory mapping? How is it done?   1+5

Group B

Answer SEVEN questions.   7×8=56

4. Discuss about addressing modes with example.

5. Mention advantages of pipelining. Explain RISC pipeline.

6. Explain about cache coherence in multiprocessor system.

7. Explain the operation of DMA with a block diagram.

8. Discuss about computer instruction and instruction cycle.

9. What is control unit? Explain its design procedure.

10. What is serial communication? Explain with an example.

11. Differentiate vector and array processing.

12. Write short notes on any TWO:
    (a) Asynchronous data transfer   (b) Associative memory
    (c) Floating point arithmetic

PURBANCHAL UNIVERSITY
2017

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions.   2×12=24

1. Define development and point out its various indicators.

2. Explain mechanism of social control.

3. Account for the various social problems of Nepal.

Group B

Answer SEVEN questions.   7×8=56

4. ~~Differentiate globalization and modernization.~~

5. Briefly discuss the factors of social change.

6. Describe the impact of technological advancement in Nepalese society.

7. Differentiate between globalization and modernization.

8. Sketch the requirements of successful planning.

9. Why e-governance in Nepal is required?

10. Briefly discuss different types of migration.

11. Explain the corporate social responsibility in brief.

12. What is profession and professional ethics?

≈

4) Sketch four stages of evolution of sociology.

PURBANCHAL UNIVERSITY
2017

4 Years Bachelor of Computer Application (BCA)/Third Semester/*Final*

Time: 03:00 hrs.   Full Marks: 60 /Pass Marks: 24

BCA273CO: Data Structure and Algorithm *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions.   2×12=24

1. Explain Tree with its types. Discuss different tree traversal method with example.

2. Discuss types of graphs with example and explain graph traversal method in detail.

3. What is doubly linked list? Discuss advantages of doubly linked list over singly linked list. Also write an algorithm to insert a node in the beginning of doubly linked list with example.

Group B

Answer SIX questions.   6×6=36

4. What is stack? Explain different operations performed on stack with example.

5. Differentiate between linear queue and circular queue. Explain the advantages of circular queue with example.

6. Discuss the advantages of recursion with example and write an algorithm to perform factorial calculations.

7. What is sorting? Explain radix sort with example.

8. Why searching is required? Explain sequential search method with example.

9. What is hashing? Explain different hash collision resolution technique in brief.

10. Discuss dijkstra algorithm with example in brief.

11. Write short notes on any TWO:

    (a) Priority Queue   (b) Adjacency matrix implementation
    (c) Abstract data type

Required: The Consumption value of the material and closing stock as on 30.9.2005, under FIFO method

6. The production of a certain unit of an item is assumed to require 80 kg of material costing Rs 1.50 per kg. On completion of the production of the item was found that 75 Kg. of material costing Rs 1.75 per kg has been consumed. Calculate the material variances:

7. Opening stock Rs 80000; Purchases Rs 480000; Direct expenses Rs 4000; Closing stock Rs 160000; Administrative expenses Rs 21100; Selling and distribution expenses Rs 40000; Sales Rs 10,00,000,

   Calculate:

   • Stock turnover ratio

   • Gross profit ratio

   • Net profit ratio

8. M/S Mananka acquired a machine on 1st April 2001 for Rs. 30000. Depreciation is written off at the rate of 10% on diminishing balance method. The firm closes its books on 31st December each year. Show the machinery accounts for five years.

9. What do you understand by cash flow? Mention the importance of cash flow statement.

10. What is petty cash book? Why is it prepared? Justify.

11. Write short notes on any TWO:
    (a) Labour variance   (b) Standard cost card
    (c) ABC analysis   (d) EOQ

Group B

Answer SIX questions.

6×6=36

4. 2005, May1 Balance brought down bank Rs 3080 and cash Rs. 709

May 2   Paid wages in cash Rs 218

May 3   Received Rs 177 cash from Sudhanshu after allowing him discount of Rs 13.

May 5   Paid salaries of Rs 350 by cheques.

May 6   Paid Ram Rs 188 after deducting discount of Rs 12 by cheque.

May 7   Cash sales Rs 160.

May 8   Received cheques for Rs 485 from Ali after allowing him a discount of 3%.

May 9   Paid in to Bank Rs. 220.

May 20 Received cash from Joshi of Rs 145.5 a discount of 3% being deducting

Required: Triple Column cash book.

5. A manufacturing company has recorded the following transactions of material A-320 oil, during the month of September, 2005.

2005 Sept				
1	- Opening Stock		300 Liters @ Rs. 9.70 per liter
5	- Purchase		250 Liters @ Rs. 9.80 per liter
9	-Issues	400	
14	-Purchase		300 Liters @ Rs. 10 per liter
16	-Issues	200	
25	-Purchase		150 Liters @ Rs. 10.50 per liter
26	-Issues	150	

(a) Stock on hand on 30th June 2004 is Rs. 6800.

(b) Machinery is to be depreciated at the rate of 10% and patents at the rate of 20%.

(c) Salaries for the month of June 2004 amounting to Rs. 1500 were unpaid.

(d) Insurance included a premium of Rs. 170 as a policy expiring on 31st December 2004.

(e) Bad debts are Rs. 725.

(f) Rent received in advance Rs. 1000.

(g) Interest on investment of Rs. 2000 is accrued.

2. Estimate the cash requirements of BIRAT FRUIT Co. Ltd for June 2005 on the basis of data given below:

(a) Sales:

February 2005	Rs. 25000
March 2005	Rs. 20000
April to June 2005	Rs. 30000 per month

Roughly half the sales are for cash. 90% of credit sales are collected in the month following the month of sales and the balance one month later.

(b) Fruits are always bought for cash to avail of the cash discount of 5%. The purchase budget for the second quarter (April - June) was 15000 baskets per month at Re 1 per basket.

(c) Wages and salaries for second quarter were budgeted at Rs 500 per month.

(d) Manufacturing and other expenses budget for the quarter.

Cash Expenses	Rs. 4500
Depreciation	Rs. 7500
Selling Expenses	Rs. 3000
Administrative Expenses	Rs. 2000 (in April and May only)

3. Discuss about financial accounting. Elaborate the basic accounting concepts.

PURBANCHAL UNIVERSITY
2017

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions.　　　　　　　　　　　　**2×12=24**

1. What is System Development Life Cycle? Explain the Prototyping Technique of SDLC in detail. Under what conditions Prototyping techniques is generally used?

2. Why data flow diagram is considered very effective tool is software design? Draw a context diagram and higher level data flow diagram for a Library Management System.

3. Explain when do we prefer to use a decision table instead of a flowchart? Draw a decision table to find out the smallest among three given integers.

Group B

Answer SEVEN questions.　　　　　　　　　　　　**7×8=56**

4. What do you mean by system planning and initial investigation? Explain how data is collected using interviews and Questionnaires?

5. What are conceptual data models? Draw an ER diagram for a Hospital Management System that includes Doctor, Patient, Medicine, Test, and Ward as main entities. Also make necessary assumptions if required

6. Explain how the concept of functional dependency is used in relational database design? What is the main concept behind Second Normal form? Explain with a suitable example.

7. What do you mean by system Implementation? Explain all the activities that are carried out during system implementation.

8. What is object oriented analysis and design? Draw a use-case diagram for an Online Purchase System.

PURBANCHAL UNIVERSITY
2017

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions. 2×12=24

1. What are the features of a Good User Interface? What design concepts are used in making the interface user friendly? Why understandability is considered a major parameter during interface design?

2. Compare direct and indirect manipulation with suitable examples. Define selection and explain additive and group selection in detail.

3. What are bounded and unbounded entry gizmos? Why is validation necessary in entry gizmos? Explain with examples.

Group B

Answer SIX questions. 6×6=36

4. Define pop-up menu. What do you mean by system menu? Explain.

5 Explain repositioning, resizing and reshaping operations with examples in gizmos manipulation.

6. What is goal-directed design? What are the benefits of modeling from user's viewpoint?

7. Explain revenue and excise tasks with examples? Why is it necessary to eliminate excise tasks in software design?

8. Define buttcon. What are momentary and latching buttcons? Explain with examples.

9. What do you mean by platform independence? Mention the issues with multi-platform development.

10. Write short notes on any TWO:
    (a) Canonical vocabulary
    (b) Flow
    (c) Combo box and radio buttons

PURBANCHAL UNIVERSITY
2017

Years Bachelor of Computer Application (BCA)/Third Semester/*Final*

Time: 03:00 hrs.   Full Marks: 80 /Pass Marks: 32

BCA271CO: Computer Architecture *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Group A

Answer TWO questions.   2×12=24

1. Explain about Harvard architecture with a block diagram. Point out the difference between Von-Neumann and Harvard architecture.   8+4

2. Explain about Booth algorithm for multiplication of two numbers. How 3*9 is performed using this algorithm?

3(a) Discuss virtual memory.   3

(b) Discuss importance of cache memory.   3

(c) What is memory mapping? How is it done?   1+5

Group B

Answer SEVEN questions.   7×8=56

4. Discuss about addressing modes with example.

5. Mention advantages of pipelining. Explain RISC pipeline.

6. Explain about cache coherence in multiprocessor system.

7. Explain the operation of DMA with a block diagram.

8. Discuss about computer instruction and instruction cycle.

9. What is control unit? Explain its design procedure.

10. What is serial communication? Explain with an example.

11. Differentiate vector and array processing.

12. Write short notes on any TWO:
   (a) Asynchronous data transfer   (b) Associative memory
   (c) Floating point arithmetic

PURBANCHAL UNIVERSITY
2017

4 Years Bachelor of Computer Application (BCA)/Third Semester/*Final*

Time: 03:00 hrs.   Full Marks: 80 /Pass Marks: 32

BCA207SH: Sociology *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions.   2×12=24

1. Define development and point out its various indicators.

2. Explain mechanism of social control.

3. Account for the various social problems of Nepal.

Group B

Answer SEVEN questions.   7×8=56

4. ~~Differentiate globalization and modernization.~~

5. Briefly discuss the factors of social change.

6. Describe the impact of technological advancement in Nepalese society.

7. Differentiate between globalization and modernization.

8. Sketch the requirements of successful planning.

9. Why e-governance in Nepal is required?

10. Briefly discuss different types of migration.

11. Explain the corporate social responsibility in brief.

12. What is profession and professional ethics?

〰

4) Sketch four stages of evolution of sociology.

PURBANCHAL UNIVERSITY
2017

4 Years Bachelor of Computer Application (BCA)/Third Semester/*Final*

Time: 03:00 hrs.　　　　　　　　　　Full Marks: 60 /Pass Marks: 24

BCA273CO: Data Structure and Algorithm *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions.　　　　　　　　　　　　2×12=24

1. Explain Tree with its types. Discuss different tree traversal method with example.

2. Discuss types of graphs with example and explain graph traversal method in detail.

3. What is doubly linked list? Discuss advantages of doubly linked list over singly linked list. Also write an algorithm to insert a node in the beginning of doubly linked list with example.

Group B

Answer SIX questions.　　　　　　　　　　　　6×6=36

4. What is stack? Explain different operations performed on stack with example.

5. Differentiate between linear queue and circular queue. Explain the advantages of circular queue with example.

6. Discuss the advantages of recursion with example and write an algorithm to perform factorial calculations.

7. What is sorting? Explain radix sort with example.

8. Why searching is required? Explain sequential search method with example.

9. What is hashing? Explain different hash collision resolution technique in brief.

10. Discuss dijkstra algorithm with example in brief.

11. Write short notes on any TWO:

    (a) Priority Queue　　(b) Adjacency matrix implementation
    (c) Abstract data type

☰

Required: The Consumption value of the material and closing stock as on 30.9.2005, under FIFO method

6. The production of a certain unit of an item is assumed to require 80 kg of material costing Rs 1.50 per kg. On completion of the production of the item was found that 75 Kg. of material costing Rs 1.75 per kg has been consumed. Calculate the material variances:

7. Opening stock Rs 80000; Purchases Rs 480000; Direct expenses Rs 4000; Closing stock Rs 160000; Administrative expenses Rs 21100; Selling and distribution expenses Rs 40000; Sales Rs 10,00,000,

Calculate:

- Stock turnover ratio

- Gross profit ratio

- Net profit ratio

8. M/S Mananka acquired a machine on 1st April 2001 for Rs. 30000. Depreciation is written off at the rate of 10% on diminishing balance method. The firm closes its books on 31st December each year. Show the machinery accounts for five years.

9. What do you understand by cash flow? Mention the importance of cash flow statement.

10. What is petty cash book? Why is it prepared? Justify.

11. Write short notes on any TWO:
    (a) Labour variance   (b) Standard cost card
    (c) ABC analysis   (d) EOQ

Group B

Answer SIX questions.

4. 2005, May1 Balance brought down bank Rs 3080 and cash Rs. 709

   May 2 Paid wages in cash Rs 218

   May 3 Received Rs 177 cash from Sudhanshu after allowing him discount of Rs 13.

   May 5 Paid salaries of Rs 350 by cheques.

   May 6 Paid Ram Rs 188 after deducting discount of Rs 12 by cheque.

   May 7 Cash sales Rs 160.

   May 8 Received cheques for Rs 485 from Ali after allowing him a discount of 3%.

   May 9 Paid in to Bank Rs. 220.

   May 20 Received cash from Joshi of Rs 145.5 a discount of 3% being deducting

   Required: Triple Column cash book.

5. A manufacturing company has recorded the following transactions of material A-320 oil, during the month of September, 2005.

2005 Sept	1	- Opening Stock		300 Liters @ Rs. 9.70 per liter
	5	- Purchase		250 Liters @ Rs. 9.80 per liter
	9	-Issues	400	
	14	-Purchase		300 Liters @ Rs. 10 per liter
	16	-Issues	200	
	25	-Purchase		150 Liters @ Rs. 10.50 per liter
	26	-Issues	150	

(a) Stock on hand on 30th June 2004 is Rs. 6800.
(b) Machinery is to be depreciated at the rate of 10% and patents at the rate of 20%.
(c) Salaries for the month of June 2004 amounting to Rs. 1500 were unpaid.
(d) Insurance included a premium of Rs. 170 as a policy expiring on 31st December 2004.
(e) Bad debts are Rs. 725.
(f) Rent received in advance Rs. 1000.
(g) Interest on investment of Rs. 2000 is accrued.

2. Estimate the cash requirements of BIRAT FRUIT Co. Ltd for June 2005 on the basis of data given below:

(a) Sales:

February 2005	Rs. 25000
March 2005	Rs. 20000
April to June 2005	Rs. 30000 per month

Roughly half the sales are for cash. 90% of credit sales are collected in the month following the month of sales and the balance one month later.

(b) Fruits are always bought for cash to avail of the cash discount of 5%. The purchase budget for the second quarter (April - June) was 15000 baskets per month at Re 1 per basket.

(c) Wages and salaries for second quarter were budgeted at Rs 500 per month.

(d) Manufacturing and other expenses budget for the quarter.
Cash Expenses	Rs. 4500
Depreciation	Rs. 7500
Selling Expenses	Rs. 3000
Administrative Expenses	Rs. 2000 (in April and May only)

3. Discuss about financial accounting. Elaborate the basic accounting concepts.

PURBANCHAL UNIVERSITY
2019

4 Years Bachelor of Computer Application (BCA)/Fifth Semester/Final

Time: 03:00 hrs.   Full Marks: 60 /Pass Marks: 24

BCA375CO: Computer Graphics (New Course)

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A
Answer TWO questions.   2×12=24

1. Explain different types of color manipulation techniques in detail.
2. Discuss Bresenham's midpoint circle drawing algorithm in detail.
3. What is specular reflection? Explain gouraud model with example.   4+8

Group B
                    6×6=36
Answer SIX questions.

4. Explain 2-D Rotation with example.
5. Explain two dimensional fixed point scaling in detail.
6. What are hidden line and surface removal techniques? Explain Z-buffer method in detail.   2+4
7. Explain windows to viewport transformation in detail.
8. Explain light pen and touch screen in brief.
9. Explain diffuse and specular reflection.   3+3
10. Write short notes on any TWO:

    (a) Projection

    (b) Application of graphics

    (c) Polygon table

                    ≋

PURBANCHAL UNIVERSITY
2019

4 Years Bachelor of Computer Application (BCA)/Fifth Semester/Final

Time: 03:00 hrs.   Full Marks: 60 /Pass Marks: 24

BCA374CO: Web Technology *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions.   2×12=24

1. (a) Explain slicing with a proper example.   6

   (b) Explain table-based design vs tableless design   6

2. What is client-side scripting and what are its features? Write a program in JavaScript to prompt the user to input three values for a, b and c. On clicking a button "OK", calculate $x = 4a+2b^2+c$, and display the value of x.   4+8

3. Write HTML code to generate the following output: 6+6

S. No.	Items	Brand
1.	Desktop Computer	HP
2.	Laptop	Apple
3.	Printer	Samsung

Use external CSS to display the above table with the formatting given as below:

Table background - Blue

Table header - White font, bold style, and center aligned

Table contents - Black font, and alignment as given in table

Group B

Answer SIX questions.   6×6=36

4. Explain static web page and dynamic web page with examples.   6

5. What are the different ways of creating hyperlinks? Explain with examples.   6

Contd. ...

6. Explain with examples, the differences between XSL Schema and XSL DTD. 6

7. Write a program in PHP to find factorial of a given number using recursive function. 6

8. Using PHP, perform CRUD operations in a database table "Employee" with EmpId, Name, Address, and Salary. 6

9. Define lexical structure. Highlight significance of JSON. 3+3

10. Write short notes on any TWO: 3+3

(a) Exceptional handling

(b) AJAX

(c) Code-Igniter

PURBANCHAL UNIVERSITY
2020

4 Years Bachelor of Computer Application (BCA)/Fifth Semester/Final

Time: 03:00 hrs.   Full Marks: 80 /Pass Marks: 32

BCA370CO: Software Engineering (New Course)

Candidates are required to give their answers in their own words as far as practicable.

All questions carry equal marks. The marks allotted for each sub-question is specified along its side.

Group A

Answer TWO questions.   2×12=24

1. Explain the activities of project planning process. Why is project scheduling important and what are the several project scheduling techniques? Explain.   5+2+5

2. Explain why software testing is very important step in software development lifecycle? Explain various types of integration testing technique mentioning their strengths and weaknesses.   4+8

3. Why software architecture is important? Explain various types of architectural styles used in software Engineering.   4+8

Group B

Answer SEVEN questions.   7×8=56

4. Explain the different phases of RAD model.   8

5. What is the concept of equivalence class partitioning? Explain the computation process of cyclomatic complexity in brief.   2+6

6. Define SRS. Explain the process model of requirement elicitation and analysis.   2+6

7. How DFD is different from flowchart? Explain the decomposition process of DFD.   2+6

8. Why ISO Certification is required by the software industry? Explain CMMI model in brief.   2+6

9. What is extreme programming? Discuss the utilizations of cloud computing technology in todays software industry.   2+6

10. What is software inspection? Explain clean room software engineering in brief.   2+6

11. What are the characteristic of object oriented design? Explain sequence diagram with suitable example. 2+6

12. Write short notes on any TWO: 4+4

   (a) Software Quality Assurance(SQA)

   (b) COCOMO model

   (c) Software Configuration Management (SCM)

≋

PURBANCHAL UNIVERSITY
2020

4 Years Bachelor of Computer Application (BCA)/Fifth Semester/*Final*
Time: 03:00 hrs.   Full Marks: 80 /Pass Marks: 32
BCA371CO: Object Oriented Analysis and Design *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions.   2×12=24

1. What do you mean by object-oriented analysis? Explain the several approaches for identifying classes and objects, also explain features of analysis and design.   2+10

2(a) What is UML and what are its basic building blocks? Explain.   6

  (b) Explain sequence diagram and state transition diagram with a suitable example.   6

3(a) What do you mean by object oriented implementation. Compare structured Vs object oriented based implementation.   2+4

  (b) Explain mapping design to code (forward engineering).   6

Group B

Answer SEVEN questions.   7×8=56

4. Compare aggregation and generalization and specialization with example.   8

5. Explain interaction diagram with an example. Draw a Interaction diagram for a phone call system.   4+4

6. What do you mean by reverse engineering? Write down its benefits and limitations.   4+4

7. Explain the stages of object-oriented development life cycle.   8

8. What are use-case diagram used for? Draw a use-case diagram for a Bank ATM.   2+6

9. What is GoF? Explain design pattern applying for GoF.   2+6

10. What is an exception? Show error-handling mechanism in object-oriented software.   2+6

Contd. ...

11. Write short notes on any TWO: 4+4
    (a) CRC
    (b) Cohesion Cohesion and coupling
    (c) Static vs dynamic modeling

≋

PURBANCHAL UNIVERSITY
2020

4 Years Bachelor of Computer Application (BCA) / Fifth Semester / Final

Time: 03:00 hrs.   Full Marks: 60 / Pass Marks: 24

BCA3768H: Probability & Statistics *(New Course)*

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions. $2 \times 12 = 24$

1. A factory produces two types of electric bulbs A and B. In an experiment relating to their life, the following results were obtained:

Length of life (in hours)	500-700	700-900	900-1100	1100-1300	1300-1500
No. of bulbs of type A	5	11	26	10	8
No. of bulbs of type B	4	30	12	8	6

Compare the variability of the life of the two types of bulbs using coefficient of variation and decide which type is more consistent in life.

2. The following data gives the experience of machine operators in years and their performance as given by the number of good parts turned out per 100 pieces.

Operator	I	II	III	IV	V	VI	VII	VIII
Experience	16	12	18	4	3	10	5	12
Performance	87	88	89	68	78	80	75	83

(a) Calculate the correlation coefficient between experience and performance.

(b) Calculate the regression equation of performance on experience and hence estimate the performance if an operator has 8 years experience.

3. Income of a group of 10,000 persons was found to be normally distributed with mean Rs. 1,520 and standard deviation Rs. 160. Estimate (a) highest income of poorest 2000 persons (b) lowest income of richest 1000 persons.

Contd. ...

PURBANCHAL UNIVERSITY
2020
4 Years Bachelor of Computer Application (BCA) / Fifth Semester / Final

Time: 03:00 hrs. Full Marks: 60 / Pass Marks: 24

BCA3765H: Probability & Statistics (New Course)

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group A

Answer TWO questions. 2×12=24

1. A factory produces two types of electric bulbs A and B. In an experiment relating to their life, the following results were obtained:

Length of life (in hours)	500-700	700-900	900-1100	1100-1300	1300-1500
No. of bulbs of type A	5	11	26	10	8
No. of bulbs of type B	4	30	12	8	6

Compare the variability of the life of the two types of bulbs using coefficient of variation and decide which type is more consistent in life.

2. The following data gives the experience of machine operators in years and their performance as given by the number of good parts turned out per 100 pieces.

Operator	I	II	III	IV	V	VI	VII	VIII
Experience	16	12	18	4	3	10	5	12
Performance	87	88	89	68	78	80	75	83

   a) Calculate the correlation coefficient between experience and performance.

   b) Calculate the regression equation of performance on experience and hence estimate the performance if an operator has 8 years experience.

3. Income of a group of 10,000 persons was found to be normally distributed with mean Rs. 1,520 and standard deviation Rs. 160. Estimate (a) highest income of poorest 2000 persons (b) lowest income of richest 1000 persons.

Contd ...